

## CLAIMS

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1. An MRI magnetic field generator that has a pair of pole pieces facing each other so as to form a air gap and that generates a magnetic field in said air gap, wherein said pole pieces each comprise a main component consisting of laminated silicon steel sheets, and a magnetic annular protrusion disposed on the side of said main component facing the air gap.
  2. The MRI magnetic field generator according to Claim 1, wherein said main component consisting of laminated silicon steel sheets is fixed and supported by a non-magnetic support member with high electrical resistance.
  3. The MRI magnetic field generator according to Claim 2, wherein said non-magnetic support member with high electrical resistance is composed of a resin, bakelite, FRP, or another such non-metal.
  4. The MRI magnetic field generator according to Claim 1, wherein said main component consisting of laminated silicon steel sheets is fixed and supported by a non-magnetic annular support member divided into a plurality of sections in the circumferential direction.

5. The MRI magnetic field generator according to Claim 1, wherein said main component consisting of laminated silicon steel sheets is fixed and supported by a magnetic lamina whose thickness is no more than 10% of the thickness of the main component and which is disposed on the opposite side of the main component from the side facing the air gap.
6. The MRI magnetic field generator according to Claim 5, wherein said magnetic lamina is divided into a plurality of sections in the circumferential direction.
7. The MRI magnetic field generator according to Claim 1, wherein said main component consisting of laminated silicon steel sheets is fixed and supported by a non-magnetic lamina which has high electrical resistance and which is disposed on the opposite side of the main component from the side facing the air gap.
8. The MRI magnetic field generator according to Claim 1, wherein said magnetic annular protrusion consists of laminated silicon steel sheets.
9. The MRI magnetic field generator according to Claim 8, wherein said main component and magnetic annular protrusion consist of silicon steel sheets laminated in the direction facing the air gap.

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10. The MRI magnetic field generator according to Claim 1, wherein the ratio ( $S_b/S_a$ ) between the overall surface area  $S_a$  on the side of said magnetic annular protrusion facing the main component consisting of laminated silicon steel sheets and the overall surface area  $S_b$  on the side of the main component consisting of laminated silicon steel sheets facing the magnetic annular protrusion is at least 80%.
11. The MRI magnetic field generator according to Claim 1, wherein said main component consisting of laminated silicon steel sheets is placed on a permanent magnet structure that is a field generation source.